



Gestational BASICS Curriculum

By: International Diabetes Center



This program focuses on the 12 weeks or less you have with your patient to help ensure a healthy pregnancy and a healthy baby. Program meets ADA recognition criteria.

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101 Tips for a Healthy Pregnancy with Diabetes

By: Pattie Geil, MS, RD, FADA, CDE;
Laura Hieronymus, MEd, APRN, BC-ADM, CDE



This book provides advice, direction, and valuable insights on the pressing topics involved with pregnancy and diabetes. Topics range from nutrition to labor.

Purchase online at
<http://store.diabetes.org>



Diabetes and Pregnancy

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Currently the American Diabetes Association (ADA) estimates that 9.3 million women over age 20 have diabetes. While women with diabetes can have a healthy pregnancy outcome, it takes planning and effort to achieve this goal. Preconception care is the first important step. Expanding the health care team to include an obstetrician/perinatologist, an endocrinologist, a diabetes educator, and a dietician can increase the chances of a successful outcome.

Most oral antidiabetic agents are contraindicated during pregnancy because they cross the placenta and stimulate the fetal pancreas leading to hyperinsulinemia. Although none of these drugs have been shown to be teratogenic, it is prudent for women with type 2 diabetes to discontinue their use prior to conception and be evaluated for insulin therapy if normoglycemia cannot be maintained with diet and exercise alone.

With both type 1 and type 2 diabetes, the goal is to achieve and maintain an A1C level that is less than 1 percent above the normal range and tight glycemic control for three to six months prior to conception. This is similar to the recommendation during pregnancy. Fetal organogenesis occurs during the first six weeks of pregnancy, a time when most women are not aware they are pregnant. Blood glucose levels during this time affect organ development and poor glycemic control increases the chance of birth defects.

Research has shown an intake of at least 400 micrograms of folic acid per day can decrease the incidence of neural tube defects by 71%. All women, including those with diabetes, should take a folic acid supplement daily for at least three months prior to conception as well as throughout the pregnancy.

Gestational Diabetes

The ADA estimates gestational diabetes (GDM) is found in 2.5 percent of all pregnancies accounting for more than 135,000 cases annually. Defined as any degree of glucose intolerance with onset or first recognition during pregnancy, this definition applies whether insulin or only medical nutrition therapy is used for treatment and/or, whether or not the condition persists after pregnancy. Women with GDM are at increased risk for the development of diabetes, usually type 2, after pregnancy. Offspring of women with GDM are at increased risk of obesity, glucose intolerance and diabetes in late adolescence and young adulthood.

Glycemic Control

Maintaining tight glycemic control during pregnancy presents a challenge for women with all types of diabetes. The same pregnancy hormones that help the baby grow and develop can play havoc with blood glucose levels. A registered dietician can individualize a meal plan that provides sufficient nutrients for a healthy pregnancy with an appropriate weight gain, while maintaining glycemic control. Regular physical activity can also improve glycemic control. Self blood glucose monitoring should be done at least 4 times per day, more frequently if an insulin pump is used.

Insulin requirements during pregnancy are influenced by pregnancy hormones. While insulin needs may decrease during the first trimester, a dramatic



Mark Your Calendar!

Upcoming Meetings

American Diabetes Association

- ◆ 53rd Annual Advanced Postgraduate Course
February 10-12, 2006
San Francisco, CA

www.diabetes.org



In The Loop...

Manage Diabetes with Online Resources

An interactive Spanish-language website launched for diabetes patients on how early diagnosis and individualized treatment plans can prevent long-term complications associated with diabetes. The campaign encourages Hispanic Americans to get a blood-glucose test to determine if they have the disease.

diabetesinformate.com

In conjunction with the American Diabetes Association's "Doing Better: Tools for Diabetes Care" program, an interactive Web-based tool called *Diabetes PHD (Personal Health Decisions)* is now available to assist in managing diabetics' health, providing steps to live healthier, longer lives.

diabetes.org/diabetesphd



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increase in insulin need occurs at 24 – 28 weeks and continues to rise until 38 – 40 weeks gestation, then drops rapidly after delivery. Blood glucose levels must be monitored closely throughout pregnancy in anticipation of changing insulin needs. Both the woman and her health care team must be ready to make immediate dosage adjustments in response to changing blood glucose levels.

Hypoglycemia Risk

Intensive insulin therapy, the diabetogenic hormones of pregnancy, and increased fetal consumption of glucose increase the risk of hypoglycemia during pregnancy. In addition, hypoglycemia unawareness may be more pronounced during pregnancy. Severe, frequent episodes of hypoglycemia can harm the fetus. Therefore, it is essential to know and understand ways to prevent and treat hypoglycemia which include:

- Treating episodes of hypoglycemia with 15 grams of carbohydrate as soon as possible
- Having glucagon available and making sure both the pregnant woman as well as her family members know how to use it
- Keeping a log of blood glucose values, food intake, exercise, and episodes of hypoglycemia
- Reporting the hypoglycemia to the doctor and/or diabetes educator so that changes in food intake or insulin dosage can be made

Insulin Pump Therapy

A pump is a safe and viable option for insulin delivery during pregnancy. It replicates normal, meal-stimulated insulin output. Benefits of an insulin pump include a more reliable, constant delivery of insulin, tighter glucose control, and greater lifestyle flexibility. A pump may also be helpful in preventing nighttime hypoglycemia and in making dosing adjustments during morning sickness or sick days. Women using a pump generally check blood glucose levels before and after meals, at bedtime and between 2 AM and 3 AM to maintain glycemic control.

Blood Glucose Level Risk

Glycemic control is important throughout pregnancy for women with all types of diabetes. The higher the average blood glucose levels are throughout pregnancy, the greater the risk to the fetus. Glucose crosses the placenta to the fetus. When blood glucose levels are high, fetal pancreatic islet cells produce insulin to move the glucose into the cells. Acting like a potent growth hormone, insulin causes many fetal organs, including the heart and liver, to enlarge. More noticeable are the external characteristics of a macrosomic infant. They are large for gestational age and have a characteristic distribution of fat in the shoulders and cheeks. Their increased size increases the risk of prolonged labor necessitating an instrument or surgical delivery and the risk of birth trauma related to shoulder dystocia.

The constant production of insulin by the fetal pancreas in response to maternal hyperglycemia continues even into the newborn period. When the umbilical cord is cut, the supply of maternal glucose that the infant has become used to, suddenly stops. The infant, however, continues to produce insulin for a time and is at risk for hypoglycemia, often necessitating an early glucose feeding.

Maternal hyperglycemia also increases the risk for stillbirth, respiratory distress syndrome in the newborn and increased childhood risks (obesity with difficulty handling sugar intake).

Informing Your Patients

Preconception planning is vital to help prevent the risks of birth defects and health complications for women with pregestational diabetes. The key to a healthy pregnancy for all women with diabetes is tight blood glucose control.



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